

(Woman's) Watch (chronometer) with device for
monitoring the female cycle functions and hormonal
5 contraception intake (pill)

Description

The invention relates to a (woman's) watch
10 (chronometer) with device for monitoring the female
menstrual cycle functions and hormonal contraception
intake.

The regular aspects and the individual
peculiarities of the menstrual cycle in women have been
15 the subject of extensive scientific research and have
thus been made comprehensible. In respect of the
cyclically recurring temporal aspects of the process,
normal values and physiological limit values are known.
Thus, the normal value for the duration of the cycle is
20 $28 \text{ days} \pm 1 \text{ day}$, for which limit values of up to ± 7
days are still considered as physiological (not
pathological) in the scientific literature. The
duration of the menstruation phase is set at 5 ± 2
days, the duration of the conception phase
25 (physiological readiness to conceive) is theoretically
a maximum of 60 hours. The time of ovulation, the most
important event for regulating conception, is, in
physiologically healthy women, a variable of the
individual duration of the total cycle and with this is
30 subject to considerable variations in time. The end of
the menstrual cycle is defined in the literature as
being the start of the following menstruation phase.
The overall course of a cycle can be expressed as a
ratio of duration and time.

35 No attempts to simulate this process with the
aid of technical devices using analog scales or digital
circuits have hitherto been disclosed. It would appear
that such a possibility was not even considered
previously or was deemed technically unfeasible.

The same is true of a device for monitoring the intake of hormonal contraception (the pill). Since the frequency of intake varies overall with the cycle duration and the first intake of the "pill" has to be
5 at the end of menstruation (from the 5th day of the cycle) and not at its onset, a technical timing device which could monitor this process does not seem practicable. The time measurement techniques used in the chronology industry are highly specialized, and the
10 monitoring instruments used are restricted to measuring so-called physical time. Thus, although calendar and date display devices are known and have been technically realized in a variety of ways, they are nevertheless oriented exclusively to the culturally
15 specific division of the solar year into 12 months. (Whereas, for example, the lunar year of 13 times 28 days (mean between the sidereal and synodic lunar orbit and normal value of the female cycle duration) which is more favourable for female cycle monitoring has been
20 driven from our consciousness).

Thus, a woman seeking to monitor her individual cycle status is faced with a difficult, impractical and therefore also unreliable concordance method with pocket diary and pencil, which in everyday life are
25 often not to hand at the decisive moment.

Accordingly, the object of the invention is to make available a practical, effective and individually settable monitoring device with which a woman can monitor her menstrual cycle and hormonal contraception.

30 Such a device is practical if it is simple to use and if the monitoring information is available or can be made available at any time.

It is effective if it reliably displays the woman's main cycle functions: cycle day, cycle
35 duration, cycle phase and conception phase and if it permits daily monitoring of hormonal contraception intake.

The device can be used individually if it can be set to the individual cycle start and to the individual cycle duration.

According to the invention, a practical, effective and individually settable monitoring device for the purposes described can be achieved by amalgamating the knowledge of the temporal relationships of the biological and physiological mechanism of the menstrual cycle with the known mechanics for measuring so-called physical time. Technically, this is done by modifying the date display device known from wrist watches. This modification is characterized by:

1) a cycle calendar with figures, numerals, surface symbols which, according to number, range and content, illustrate the cycle phases and cycle days of the female menstrual cycle,

2) a movable setting device - with symbols for the conception phase and for the deviation of the individual cycle duration from the normal 28-day cycle - for adjusting the cycle calendar according to 1) to different physiological cycle durations,

3) a display device which reveals the symbols mentioned in 1) chronologically every 24 hours,

4) an actuating button which brings the display device according to 3) from each position into the starting position of the cycle calendar according to 1) and at the same time reveals the display device according to 6) with the symbol "z" described there,

5) an actuating button which reveals the display device according to 6) with the symbol "y",

6) a display device - with three ("z", "y", "x") different symbols signifying: "z" = intake necessary, "y" = intake not necessary, "x" = intake pointless - which reveals the symbol "z" on each change of the display device according to 3), reveals the symbol "y" upon actuation of the actuating button according to 5), and reveals the symbol "x" upon non-actuation of the actuating button according to 5)

between two display changes of the display device according to 3).

Illustrative embodiment of the invention:

Fig. 1 (see drawings) shows the watch with the
5 functional parts of the device:

- A = cycle calendar
- B = setting device
- C = pointer
- D = reset button
- 10 E = actuating button
- F = display device for contraception monitoring,
with viewing window

re A

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The cycle calendar (see Fig. 2) is circular and arranged on the face of the watch. The cycle days are depicted by numerical symbols, starting from "1" and running in the clockwise direction. The calendar is
20 suitable for monitoring menstrual cycles of up to 36 days' duration. The symbol "*" over the "1" shows the start of menstrual bleeding. The symbol "*" over "28" shows the duration of the normal cycle of 28 days. The black field over "1 .. 5" shows the normal duration of
25 the menstruation phase, while the hatched field over "5 .. 7" shows the physiological limit of the menstruation phase. If bleeding occurs beyond the hatched field, medical advice must be sought.

The white field over "21 .. 35" marks the
30 physiological limits of the duration of the total cycle. If its end lies outside the said field (prolonged cycle, more than 35 days = oligomenorrhoea, shortened cycle, less than 21 days = polymenorrhoea), medical advice must be sought.

35 (Note: The range of the cycle calendar of 36 days is suitable for women with physiological menstruation. Before the first menstrual period (13 to 17 years of age), there is a cycle duration of 34 ± 10

days. A calendar range of more than 44 days would be practical for these circumstances).

re B

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The setting device (see Fig. 3) is fitted into the face of the watch in the form of a circular strip on the inner periphery of the cycle calendar and in such a way that it can be turned. Arranged on the setting device there are numerical symbols and a letter symbol (+7 .. N.. -7) and a black field and a hatched field. The symbols and the fields correspond to the symbols of the cycle calendar in such a way that if the symbol "N" of the setting device is turned so as to lie under the symbol "1" of the cycle calendar, the black and hatched fields of the setting device appear under the numerical symbols "11 .. 16" of the cycle calendar. See Fig. 3a. The setting device is used to adjust the watch to the individual cycle duration, on which at the same time the ovulation time and thus the start of the conception phase depend.

Fig. 3a shows the setting in the normal case of a menstrual cycle of 28 days. The symbol "N" (= normal cycle) is under "1". The conception phase (= physiological readiness to conceive) is accordingly between the 11th day and 16th day of the cycle. The black field (12th to 15th day) shows the theoretically possible duration of conception, while the hatched fields simply represent "safety tolerances".

Fig. 3b shows the watch set for a prolonged cycle duration of 35 days. The symbol "+7" of the setting device is turned so as to lie under the symbol "1" of the cycle calendar. The conception phase accordingly lies between the 18th day and 23rd day of the menstrual cycle.

Fig. 3c shows the setting for a woman with a greatly reduced cycle. "-7" lies under "1". Conception phase between 4th and 9th day.

re C

The pointer (C) passes across the cycle calendar (A) and the setting device (B). At the onset
5 of menstrual bleeding (= start of the cycle), the pointer (C) is brought to the starting position, i.e. to numerical symbol "1" of the calendar cycle (A), by actuating the reset button (see D). In the time interval of 24 hours, the pointer (C) moves forward in
10 the clockwise direction, in each case by one numerical symbol. By means of the pointer (C) (in the same way as in a date display), the particular cycle day, cycle phase and conception phase and the cycle duration can be read off from the cycle calendar (A) and from the
15 setting device (B).

re D

The reset button (D) brings the pointer (C)
20 from any position to the starting position at the symbol "1" of the cycle calendar (A) and at the same time reveals the symbol "z" of the display device for contraception monitoring under the viewing window (see F).

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re E

The actuating button (E) brings the display device for contraception monitoring (see F) from the
30 position "y" to the position "z".

re F

The display device for contraception monitoring
35 (see Fig. 4) is arranged as a rotatable round disc under the face of the watch (Fig. 4a). The symbols "z", "y" and "x" are arranged on the disc. The symbols signify the following:

"z" = pill intake not necessary,

"y" = pill intake necessary,
"x" = pill intake pointless (since hormonal
contraception is no longer possible in
the current cycle).

5 One each of the symbols can be read under the
viewing window. The display device (F) is controlled by
the reset button (D), the actuating button (E) and the
pointer (C). By actuating the reset button (D), the
symbol "z" is turned so as to lie under the viewing
10 window. With the movement of the pointer (C) to the
symbol "5" (= 5th day of the current cycle) of the cycle
calendar A, the disc is turned from position "z" to
position "y". By actuating the actuating button (E) (=
recording of pill intake), the symbol "z" reappears
15 under the viewing window, and so on each day until the
end of the current cycle.

If the actuating button (E) is not actuated
during two movements of the pointer (C) (i.e. no intake
of the pill has been recorded for over 24 hours), the
20 symbol "x" appears under the viewing window. The symbol
"x" can only be turned away from the viewing window by
actuating the reset button (D).

Sketches of a second illustrative embodiment
with a device covered by the face of the watch.

25 Fig. 5 shows an illustrative embodiment of the
device without a pointer. The cycle calendar and a ring
with symbol field for the conception phase and the
setting device are rotatable, and the symbols come into
view under viewing windows.

30 A = viewing window with information on cycle phases
 B = viewing window with cycle day (13)
 C = viewing window for conception phase
 D = viewing window with setting device (N)
 E = viewing window for monitoring pill intake (x).

35 The watch is set to a normal cycle duration of
28 days, the day shown being the 13th cycle day, with
physiological readiness to conceive, and without
correct intake of the pill.

Patent Claims

(Woman's) Watch (chronometer) with device for
5 monitoring the female cycle functions and hormonal
contraception intake, characterized by:

1) a cycle calendar with figures, numerals,
surface symbols which, according to number, range and
content, illustrate the cycle phases and cycle days of
10 the female menstrual cycle,

2) a movable setting device - with symbols for
the conception phase and for the deviation of the
individual cycle duration from the normal 28-day cycle
- for adjusting the cycle calendar according to 1) to
15 different cycle durations,

3) a display device which reveals the symbols
mentioned in 1) chronologically every 24 hours,

4) an actuating button which brings the display
device according to 3) from each position into the
20 starting position of the cycle calendar according to 1)
and at the same time reveals the display device
according to 6) with the symbol "z" described there,

5) an actuating button which reveals the
display device according to 6) with the symbol "y",

25 6) a display device - with three (3) different
symbols signifying: "z" = intake necessary, "y" =
intake not necessary, "x" = intake pointless - which
reveals the symbol "z" on each change of the display
device according to 3), reveals the symbol "y" upon
30 actuation of the actuating button according to 5), and
reveals the symbol "x" upon non-actuation of the
actuating button according to 5) between two display
changes of the display device according to 3).

Abstract

Woman's watch with device for monitoring the female cycle functions and hormonal contraception intake (pill).

The device makes it possible to read off the particular cycle day (in Fig. 1 the pointer (C) is at the 9th cycle day), the cycle phase (A), the cycle duration (A), the anticipated ovulation time (B) and the conception period (B), and it permits monitoring of daily pill intake (F) (hormonal contraception). Using the setting ring (B), the device can be adjusted to any individual physiological cycle duration. By providing the device in the form of a watch, the monitoring information is practically at all times to hand.

FIG. 1

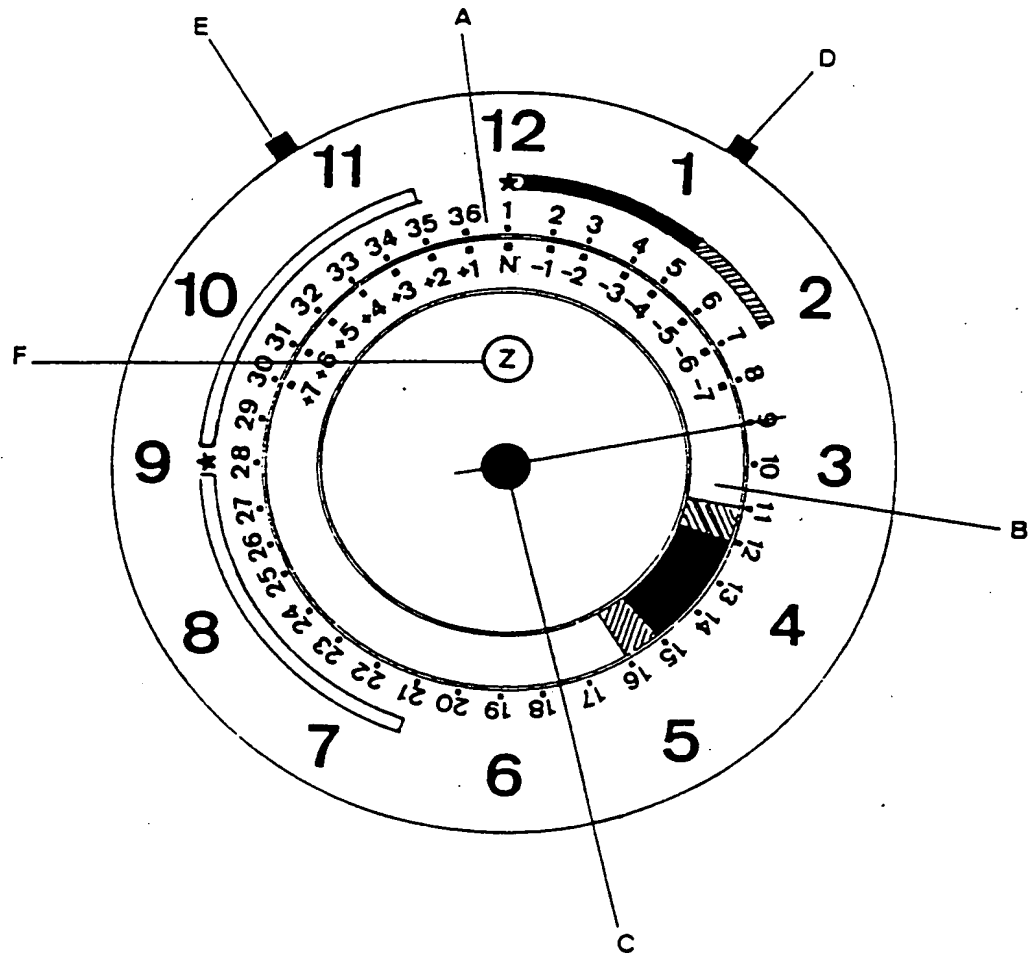


FIG. 2

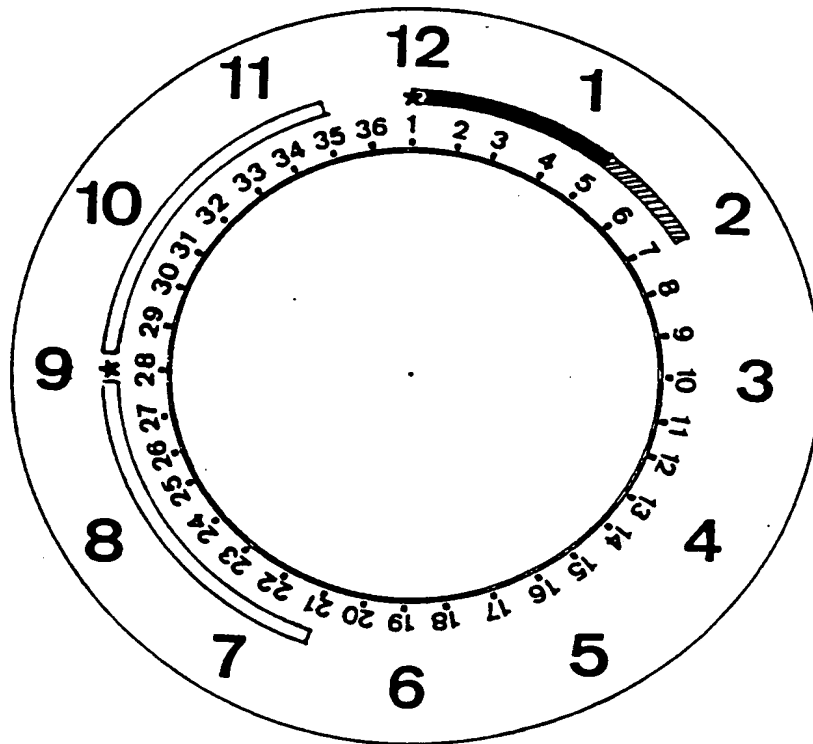


FIG. 3

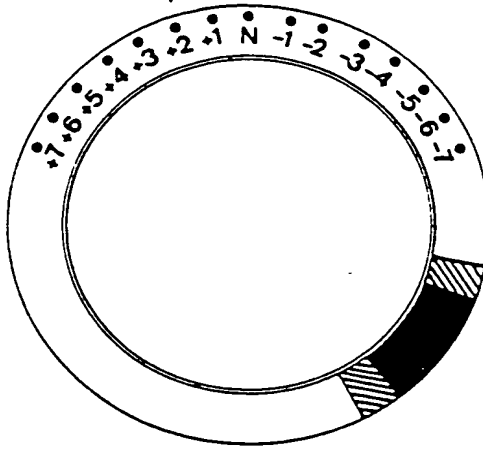


FIG. 3 a

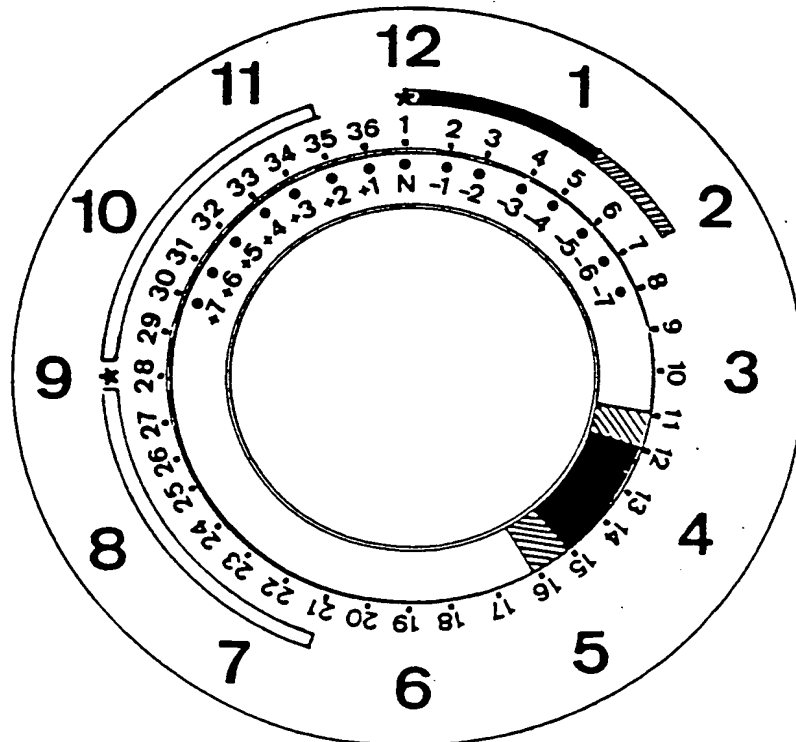


FIG. 3 b

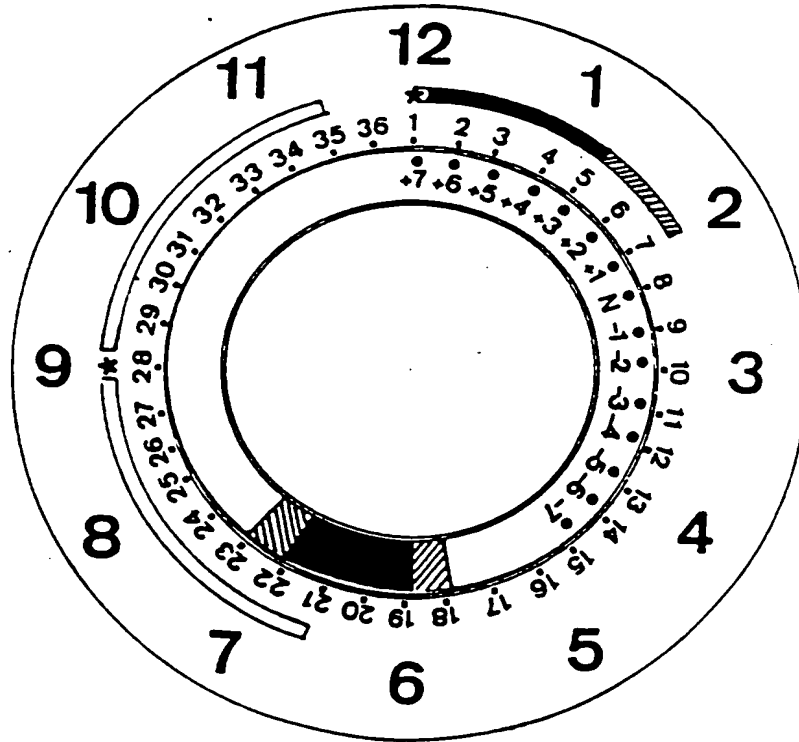


FIG. 3 C

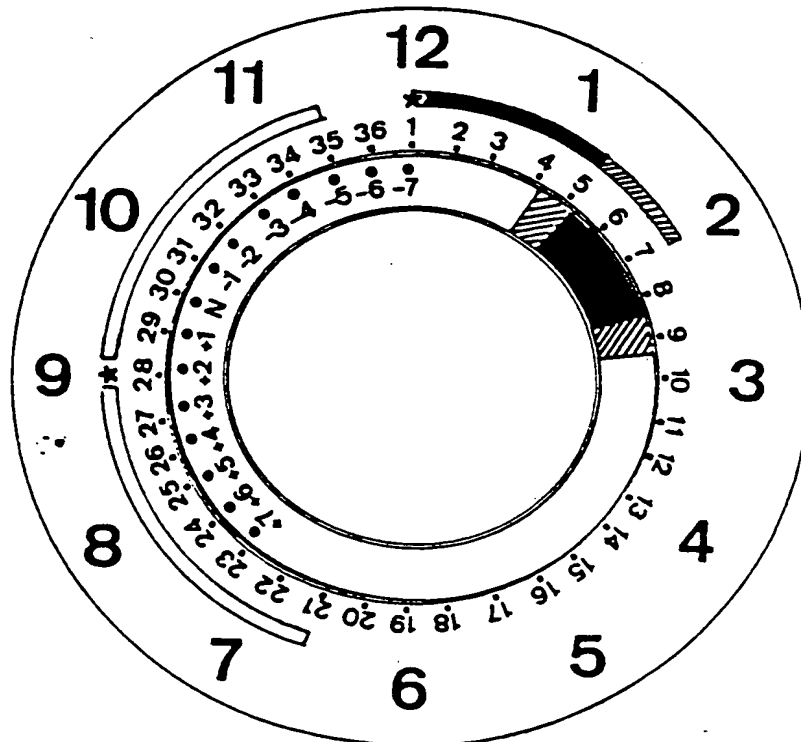


FIG. 4

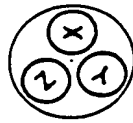
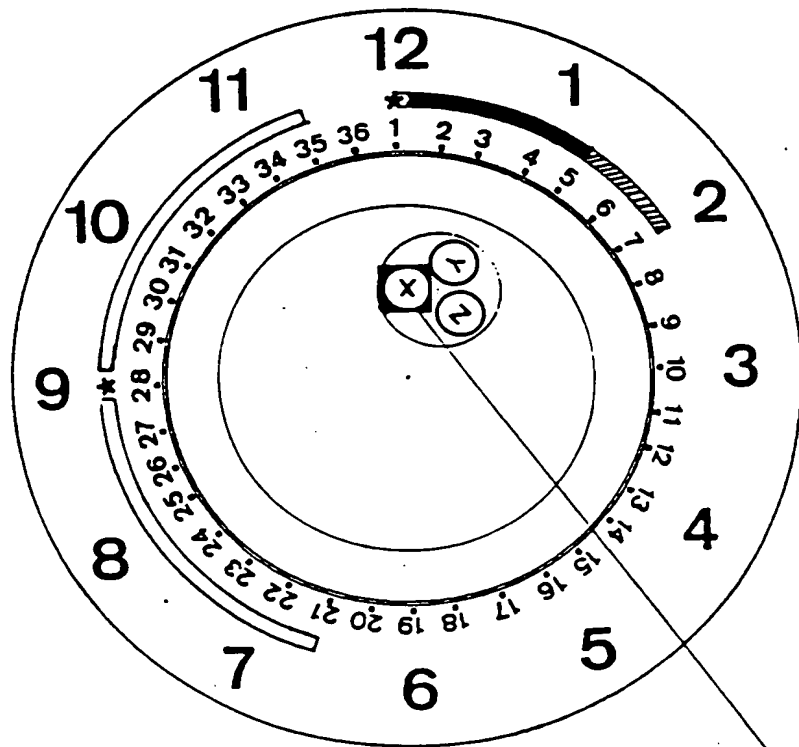


FIG. 4 a



Disc with viewing
window and symbols

FIG. 5

